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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/606,938

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Chan-Jung Park

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EXAMINER

BAREFORD, KATHERINE A

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

01/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/606,938

Applicant(s)

PARK ET AL.

Examiner

Katherine A. Bareford

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-7, 9, 19-22 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.
- Claims 2, 3, 8, 10-18, 23 and 24 are canceled*

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 7, 2007 has been entered.

The amendment of December 13, 2007 (in response to the notice of non-compliant amendment sent as to the amendment of November 7, 2007) has been entered and considered as requested by the RCE submission of November 7, 2007. With the entry of the December 13, 2007 amendment, claims 2, 3, 8, 10-18, 23 and 24 are canceled, and claims 1, 4-7, 9, 19-22 and 25 are pending for examination.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 4-7, 9, 19-22 and 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to

reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

(A) The amendment of December 13, 2007 to claim 1, 9 and 25, to provide that the coating of the volatile solution dispersed with non-sized metal particles is "in an absence of sulfur compounds" is a negative limitation that is also new matter. As discussed in MPEP 2173.05(i):

Any negative limitation or exclusionary proviso must have basis in the original disclosure. If alternative elements are positively recited in the specification, they may be explicitly excluded in the claims. See *In re Johnson*, 558 F.2d 1008, 1019, 194 USPQ 187, 196 (CCPA 1977) ("[the] specification, having described the whole, necessarily described the part remaining."). See also *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff'd mem.*, 738 F.2d 453 (Fed. Cir. 1984). The mere absence of a positive recitation is not basis for an exclusion.

In this case, the Examiner has reviewed the disclosure as filed. However, the only support provided is at paragraphs [0034] and [0035], where it is indicated that "the nano-sized metal particles of the present invention may be blended with non-metal particles. However, in such a case, antibacterial activity is decreased", and with examples being shown as to the specific additional use of sulfur particles. This does not provide basis for "in an absence of sulfur compounds" because (1) these compounds do not have to be particles and (2) these compounds do not have to be elemental sulfur, which is the only specific non-metal particle described in the specification. Therefore, the amendments contain new matter.

(B) Applicant has also amended claim 25, last line, to indicate that the deposit of particles on the filter is "to provide non-aerosol antibacterial activity". The Examiner has reviewed the disclose are filed, however, there is no support for this limitation, which would also be a negative limitation as discussed with regard to section (A) above. Therefore, the claim contains new matter.

(C) Claims 1 was further previously amended to provide that the coating of the volatile solution occurs "onto the surface of the filter body in the air cleaner or home appliance body", and further "thermally treating the coated filter body in the air cleaner or home appliance body". However, further review of the disclosure as filed by the Examiner indicates that there is no support for this requirement. The description of the coating of a filter body does not indicate that it is in the air cleaner or home appliance body at the time of coating or thermal treatment. The claim contains new matter.

The other dependent claims do not cure the defects of the claims from which they depend.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. The rejection of claims 1, 4-7, 9 and 19-22 under 35 U.S.C. 103(a) as being unpatentable over WO 02/13999 A1 (hereinafter '999) in view of Sato et al (US 2001/0023593) is withdrawn due to the amendments to the claims of December 13, 2007 to require coating in an absence of sulfur compounds.

However, the Examiner notes the 35 USC 112, first paragraph, new matter rejection as to this issue above.

7. The rejection of claim 25 under 35 U.S.C. 103(a) as being unpatentable over '999 in view of Sato as applied to claims 1, 4-7, 9 and 19-22 above, and further in view of Mayhue (US 4067205) is withdrawn due to the amendments to the claims of December 13, 2007 to require coating in an absence of sulfur compounds.

However, the Examiner notes the 35 USC 112, first paragraph, new matter rejection as to this issue above.

8. The rejection of claim 23 under 35 U.S.C. 103(a) as being unpatentable over Nishida et al (US 5897673) in view of Zhou et al (US 5804057) is withdrawn due to the cancellation of the claim.

9. Claims 1, 4-7, 9, 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida et al (US 5897673) in view of Sato et al (US 2001/0023593).

Nishida teaches a method of providing antibacterial activity on the surface of a body that can be a filter body. Column 1, lines 5-20 and column 22, lines 55-65. The filter can be used in air cleaning (purifiers) or air conditioning devices (which filter also act as an air cleaner). Column 22, lines 60-65. A volatile solution dispersed with nano-sized metal particles is provided that is coated onto the surface of the body. Column 6, lines 15-60, column 8, lines 50-60 and column 9, lines 55-65 (particles of silver would at least be present during the precipitation, and 0.02 micron would be 20 nm). The solution and coating can be in the absence of sulfur compounds. See the solution of column 9, lines 55-65 (where no sulfur material is shown as used). The body is dried and thermally treated. Column 9, lines 55-65. The thermal treatment can be at 80 degrees C, for example. Column 9, lines 55-65 (temperature during the ion-exchanging

reaction). At such a temperature, deformation of the filter body would be prevented as worded by the claim. The metal particles can be silver particles. Column 9, lines 55-65.

Claim 7: the metal particles have a sterilizing function. See the abstract (antibacterial, for example).

VS Claim 19-21: the particle sizes can be 20 ^{nanometers} ~~microns~~, for example. Column 9, lines 55-65 (0.02 microns).

Claim 22: the coating can be a deposition process. Column 9, lines 55-65, since particles are deposited on the filter.

Nishida teaches all the features of these claims except that (1) the body to be coated is a home appliance body (claim 1,9) or filter body IN an air cleaner (claims 1), (2) the heat treatment at 150 degrees C (claim 4) and the amount of particles per solution (claims 5-6).

Sato teaches that it is well known when forming an air conditioner (a home appliance, as indicted by claim 9), it is well known to apply a compound of silver of copper or the like to various components of the air conditions, including the filter, heat exchanger, blower and the like in the air conditioner in order to provide an antibacterial and mold-proofing finish. Paragraph [0002].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nishida to provide the antibacterial coating composition containing the silver particles onto various components to be used in an air conditioner, including a filter, body, etc, while in the air conditioner as suggested by Sato, with an

expectation of providing a desirably antibacterial surface coating, because Nishida teaches an antibacterial silver metal particles to provide an antibacterial coating on a body such as a filter for an air conditioner or air cleaner and Sato teaches that a body that is known to need such a coating is components of an air conditioner, such as the filter, etc.; and describes the applying to the various components "in the air conditioner", indicating the known application of such materials to filters or other parts of the air conditioner while in the air conditioner, even those that are not fibers for beneficial antibacterial protection. It would further have been obvious to provide the heat treatment after application of the coating at 150 degrees C, with an expectation of desirable coating results, because Nishida teaches to provide heating after application, with an exemplary heating of 80 degrees C, because as discussed in MPEP 2144.05, "Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)". Similarly, it would further have been obvious to optimize the amount of particles used in the solution applied to the body with an expectation of desirable coating results, because as discussed before, "Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or

temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)".

10. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida in view of Sato as applied to claims 1, 4-7, 9 and 19-22 above, and further in view of Mayhue (US 4067205).

Nishida in view of Sato teaches all the features of these claims except that the filter of the air conditioner is copper or stainless steel.

However, Mayhue teaches an air conditioning system for home use. Column 1, lines 5-15. Mayhue teaches the system can have a filter desirably made from stainless steel or chrome plated copper. Column 4, lines 1-20.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nishida in view of Sato to apply the coating on a stainless steel or copper filter for the air conditioning unit as described by Mayhue with an expectation of providing a desirably protected surface, because Nishida in view of Sato provides coating components of air conditioners, including filters, with antibacterial metal particle containing coating and Mayhue teaches a conventional filter for an air conditioner can desirably be made from stainless steel or copper. The antibacterial activity would be non-aerosol, given the coating applied by Nishida, and the description of how that coating works.

Response to Arguments

11. Applicant's arguments with respect to claims 1, 4-7, 9, 19-22 and 25 have been considered but are moot in view of the new ground(s) of rejection.

Nishida, Sato and Mayhue have been provided as to claims 1, 4-7, 9, 19-22 and 25 as discussed above due to the amendments to the claims.

As to Sato teaching an aerosol application, the Examiner notes that what has been cited is the background of Sato, and it's teachings as to desirable surfaces to apply silver antibacterial compositions to. The primary reference to Nishida as been cited as to the application method and resulting coating used.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) with the First Friday Off.

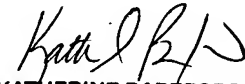
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Other inquiries can be directed to the Tech Center 1700 telephone number at (571) 272-1700.

Furthermore, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


KATHERINE BAREFORD
PRIMARY EXAMINER